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| EXAMINER | |
|---|---|
| RAO, ANAND SHASHIKANT | |
| **ART UNIT** | **PAPER NUMBER** |
| 2613 | |

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/615,791 | RIBAS-CORBERA ET AL. | |
| | Examiner | Art Unit | |
| | Andy S. Rao | 2613 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *09 July 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/9/2004*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

**DETAILED ACTION**

***Response to Amendment***

1. As per the Applicant's instructions filed in the amendment of 7/9/2004, claims 23-26 have been added.

2. Applicant's arguments filed with respect to claims 1-26 as filed in the amendment of 7/9/2004 have been fully considered but they are not persuasive.

3. The Applicant presents three collective arguments contending the Examiner's pending rejections of claims 1-2, 6-7, 9-15, and 21-22 under 35 U.S.C. 102(e) as being anticipated by Benzler et al., (hereinafter referred to as "Benzler"), of claims 3 and 5 under 35 U.S.C. 103(a) as being unpatentable over Benzler et al., (hereinafter referred to as "Benzler") in view of Pearlstein, of claims 16-20 under 35 U.S.C. 103(a) as being unpatentable over Benzler et al., (hereinafter referred to as "Benzler") in view of Pearlstein, and of claim 8 under 35 U.S.C. 103(a) as being unpatentable over Benzler et al., (hereinafter referred to as "Benzler") in view of Pearlstein and Girod et al., (hereinafter referred to as "Girod"), as set forth in the Office Action of 4/7/2004. However, after a careful consideration of the arguments presented, the Examiner must respectfully disagree and maintain the applicability of the references as grounds for rejection against currently presented and amended claims 1-26 for the reasons that follow.

Firstly, after summarizing the Benzler reference (Paper of 7/9/2004: page 13, lines 12-27; page 14, lines 1-10) and the Girod reference (Paper of 7/9/2004: page 14, lines 11-23), the Applicant argues that the Examiner has not met the burden of presenting a prima facia case of obviousness based on the combination of the references, because since the references solve different problems as asserted by the Applicant, one of ordinary skill in the art would not find

sufficient motivation to combine the teachings as done has been done by the Examiner in the rejection of 4/7/2004 (Paper of f7/f9/2004: page 14, lines 24-27; page 15, lines 1-27; page 16, lines 1-4). The Examiner respectfully disagrees. The Applicant notes that one of Benzler's main aims is image quality, and that Girod's main concern is coding efficiencies. However, it is noted that Benzler also has coding efficiency in mind along with image quality (Benzler: column 2, lines 45-50) by the implementation of the process. Thus, since Benzler discloses a concurrent concern of coding efficiency along with its thrust on image quality, the Girod reference would clearly be considered relevant to one of ordinary skill in the art since the Applicant has not established that pursuing the one aim of coding efficiency in Benzler teaches away from its stated purpose of image quality. Accordingly, the Examiner notes that since a secondary concern of the primary Benzler reference is coding efficiency, it would have obvious for one of ordinary skill in the art to incorporate the Girod reference's teachings of coding efficiency by rate distortion applications into the Benzler reference as long as Girod reference doesn't teach away from the Benzler's primary concern of image quality. Accordingly, the Examiner maintains the combination of Benzler with Girod meets the burden of presenting a prima facia case of obviousness as discussed above.

Secondly, the Applicants argue that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (Paper of 7/9/2004: page 16, lines 4-14), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include

knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

4. Lastly, the Applicants argue that Girod cannot be directly be substituted into the Benzler method and would significantly change the structure of the Benzler codec (Paper of 7/9/2004: page 16, lines 13-25). The Examiner respectfully disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Additionally, it is noted that since Benzler is an MPEG encoder, at least for the B-frame coding (Benzler: column 4, lines 55-65), it would need to rely on two anchor or reference frames, and thus would not always be restricted to a single reference frame as erroneously put forth by the Applicant.

A detailed rejection follows below.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 4, 6-7, 9-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Benzler et al., (hereinafter referred to as "Benzler") in view of Girod et al., (hereinafter referred to as "Girod").

Benzler discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: search a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on $V_1$ to find a best motion vector $V_2$ using a first criteria (Benzler: column 3, lines 57-64); searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ to find a best motion vector $V_3$ using a second criteria (Benzler: column 3, lines 65-67; column 4, lines 1-20); and searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine square radius centered on $V_3$ to find said motion vector of said macroblock using a third criteria (Benzler: column 4, lines 37-44), as in claim 1. However, the Benzler method fails to disclose using a rate-distortion cost measurement, as in the claim. Girod discloses using a rate-distortion cost measurement for coding motion vectors in order to make judicious use of the coding bit budget (Girod: column 8, lines 32-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Girod teaching of using a rate-distortion cost measurement for selecting motion vectors in order to make judicious use of the coding bit budget of the Benzler method. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has all of the features of claim 1.

Regarding claim 2, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses search a first set of eight motion vector candidates in a grid of ½ resolution of square radius 1, centered on $V_1$ to find a best motion vector $V_2$ (Benzler: column 4, lines 38-40; figure 2), as in the claim.

Regarding claim 4, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses using V2 as the motion vector for the macroblock if V2 has the smallest rate distortion cost and skipping (Benzler: column 3, lines 65-67; column 4, lines 1-5), as specified.

Regarding claim 6, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses a searching a third set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered of $V_3$ to find said best motion of said macroblock further comprising the step of skipping motion vector candidate of said third set of motion vector candidates that have already been tested (Benzler: column 4, lines 43-47), as in the claim.

Regarding claim 7, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses using a first filter, second filter, and third filter to perform first, second, and third interpolations (Benzler: column 4, lines 25-30 & lines 52-57; column 5, lines 5-15), as in the claim.

Benzler discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: search a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on

$V_1$ using a first criteria to find a best motion vector $V_2$ (Benzler: column 3, lines 57-64) using a first filter to do a first interpolation (Benzler: column 4, lines 25-30); searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ using a second criteria to find a best motion vector $V_3$ (Benzler: column 3, lines 65-67; column 4, lines 1-20) using a second filter to do a second interpolation (Benzler: column 4, lines 52-57); and searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine square radius centered on $V_3$ using a third criteria to find said motion vector of said macroblock (Benzler: column 4, lines 37-44), using a third filter to do a third interpolation (Benzler: column 5, lines 5-15), as in claim 9. However, the Benzler method fails to disclose using a rate-distortion cost measurement, as in the claim. Girod discloses using a rate-distortion cost measurement for coding motion vectors in order to make judicious use of the coding bit budget (Girod: column 8, lines 32-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Girod teaching of using a rate-distortion cost measurement for selecting motion vectors in order to make judicious use of the coding bit budget of the Benzler method. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has all of the features of 9.

Regarding claim 10, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has using a simple filter to do a coarse interpolation as said first filter (Benzler: column 4, lines 1-5), as in the claim.

Regarding claims 11-12, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has using a simple filter to do a coarse interpolation as

said first filter (Benzler: column 4, lines 1-5) and using a complex filter to do a fine interpolation as said second filter (Benzler: column 4, lines 50-55), as in the claims.

Regarding claim 13, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has using a bilinear filter to interpolate the reference frame by 2x2 (Benzler: column 3, lines 15-20), as in the claim.

Regarding claims 14-15, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has using a bilinear filter to do a first interpolation of the reference frame by 2x2 as a first filter (Benzler: column 3, lines 15-20), using a cubic filter to do a fine interpolation as a second filter (Benzler: column 4, lines 50-55; column 5, lines 15-30), as in claims.

Benzler discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: searching at a first motion accuracy for a first best motion vector of said macroblock (Benzler: column 3, lines 57-64); encoding said first best motion vector and said first motion accuracy (Benzler: column 4, lines 55-65); searching for at least one second best motion vector of said macroblock at an least second motion accuracy (Benzler: column 3, lines 65-67; column 4, lines 1-20) encoding at least one second best motion vector and at least one second motion accuracy (Benzler: column 4, lines 55-65); and selecting the best motion vector of said first and at least one second best motion vectors Benzler: column 4, lines 37-44), as in claim 16. However, the Benzler method fails to disclose using a rate-distortion cost measurement, as in the claim. Girod discloses using a rate-distortion cost measurement for coding motion vectors in order to make judicious use of the

coding bit budget (Girod: column 8, lines 32-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Girod teaching of using a rate-distortion cost measurement for selecting motion vectors in order to make judicious use of the coding bit budget of the Benzler method. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has all of the features of claim 16.

Regarding claim 17, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has the step of adapting the rate-distortion criteria according to the different motion accuracies (Girod: column 8, lines 40-50), as in the claim.

Regarding claim 18, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has searching the second motion accuracy finer than said first motion accuracy (Benzler: column 4, lines 35-55), as in the claim.

Regarding claim 19, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has using a rate-distortion criteria (Girod: column 8, lines 33-36), as specified.

Benzler discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: searching at a motion accuracy for a best motion vector of said macroblock (Benzler: column 3, lines 57-64); and encoding said best motion vector in the respective accuracy space (Benzler: column 4, lines 55-65), as in claim 20. However, the Benzler method fails to disclose using encoding said motion accuracy using a code from a VLC table that is interpreted differently at different coding units according to the associated motion vector accuracy. Girod discloses using encoding said motion

accuracy using a code from a VLC table that is interpreted differently at different coding units according to the associated motion vector accuracy (Girod: column 8, lines 65-67; column 9, lines 18) in order to minimize bit-rates (Girod: column 7, lines 55-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Girod teaching of encoding said motion accuracy using a code from a VLC table that is interpreted differently at different coding units according to the associated motion vector accuracy (Girod: column 8, lines 65-67; column 9, lines 1-8) in order to minimize bit-rates (Girod: column 7, lines 55-65). of the Benzler method. The Benzler system, now incorporating Girod's teaching of encoding said motion accuracy using a code from a VLC table that is interpreted differently at different coding units according to the associated motion vector accuracy, has all of the features of claim 20.

Benzler discloses a system for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57; column 4, lines 55-60), said system comprising: a first encoder for searching a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on $V_1$ using a first criteria to find a best motion vector $V_2$ (Benzler: column 3, lines 57-64; column 4, lines 61-65); a second encoder for searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ using a second criteria to find a best motion vector $V_3$ (Benzler: column 3, lines 65-67; column 4, lines 1-20 & lines 61-65); a third encoder for searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine square radius centered on $V_3$ using a third criteria to find said motion vector of said macroblock (Benzler: column 4, lines 37-44 & lines 61-65), as in claim 21.

Regarding claim 22, Benzler discloses that the first, second, and third encoders are a single encoder (Benzler: column 4, lines 55-60), as in the claim.

Benzler discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: search a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on $V_1$ to find a best motion vector $V_2$ using a first criteria (Benzler: column 3, lines 57-64); searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ to find a best motion vector $V_3$ using a second criteria (Benzler: column 3, lines 65-67; column 4, lines 1-20); and searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine square radius centered on $V_3$ to find said motion vector of said macroblock using a third criteria (Benzler: column 4, lines 37-44), and using V2 as the motion vector for the macroblock if V2 has the smallest rate distortion cost and skipping (Benzler: column 3, lines 65-67; column 4, lines 1-5), as specified in claim 23. However, the Benzler method fails to disclose using a rate-distortion cost measurement, as in the claim. Girod discloses using a rate-distortion cost measurement for coding motion vectors in order to make judicious use of the coding bit budget (Girod: column 8, lines 32-65). Accordingly, given this teaching it would have been obvious for one of ordinary skill in the art to incorporate the Girod teaching of using a rate-distortion cost measurement for selecting motion vectors in order to make judicious use of the coding bit budget of the Benzler method. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has all of the features of claim 23.

Regarding claims 24-26, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, has the first, second, and third criteria all being rate distortion criteria (Girod: column 8, lines 32-65).

7. Claims 3, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benzler et al., (hereinafter referred to as "Benzler") in view of Girod et al., (hereinafter referred to as "Girod") and Pearlstein.

The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: search a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on $V_1$ to find a best motion vector $V_2$ (Benzler: column 3, lines 57-64); searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ to find a best motion vector $V_3$ (Benzler: column 3, lines 65-67; column 4, lines 1-20); and searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine square radius centered on $V_3$ to find said motion vector of said macroblock (Benzler: column 4, lines 37-44), as in claims 3 and 5. However, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, fails to disclose the use if doing subsequent searches using a corresponding set of eight motion vectors using a 1/6 pixel resolution as in the claims. Pearlstein discloses using partial pixel resolutions, such as a 1/3 and 1/6 pixel resolutions (Pearlstein: column 9, lines 40-65) in order to specify fine shifts in motion in order to correct drift in the prediction error of a coded signal (Pearlstein: column 12,

lines 1-10). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate the use of Pearlstein's teaching of using 1/3 and 1/6 partial pixel resolutions into the Benzler-Girod method's second and third search steps in order to afford the Benzler-Girod method the ability to account for fine motion and correct for drift in the prediction error of its coded signal. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement and incorporating Pearlstein's use of 1/3 and 1/6 partial pixel resolutions has all of the features of claims 3 and 5.

The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, discloses a fast search adaptive motion accuracy search method for estimating vectors in motion-compensated video coding by finding a best motion vector for a macroblock (Benzler: column 1, lines 40-57), said method comprising steps of: searching a first set of motion vector candidates in a grid of sub-pixel resolution of a predetermined square radius centered on $V_1$ to find a best motion vector $V_2$ (Benzler: column 3, lines 57-64); searching a second set of motion vector candidates in a grid sub-pixel resolution of a predetermined square radius centered on $V_2$ to find a best motion vector $V_3$ (Benzler: column 3, lines 65-67; column 4, lines 1-20); and searching a third set of motion vector candidate in a grid of sub-pixel resolution of a predetermine squared radius centered on $V_3$ to find said motion vector of said macroblock (Benzler: column 4, lines 37-44), further comprising the steps of searching three candidates of V2 and a ½ pel location of the lowest rate distortion cost if V2 is at the center; searching four vector candidates that are closest to V2 if V2 is a corner vector; and determining which of the two corners has a lower rate distortion cost and searching the four vector candidates that are closest to a line between said corner with lower cost, if V2 is between two corners (Benzler:

column 5, lines 35-54), as in claim 8. However, the Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement, fails to disclose doing subsequent searches a 1/3 pixel resolution and using a rate-distortion cost as in the claim. Pearlstein discloses using partial pixel resolutions, such as a 1/3 pixel resolution (Pearlstein: column 9, lines 40-65) in order to specify fine shifts in motion in order to correct drift in the prediction error of a coded signal (Pearlstein: column 12, lines 1-10). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate the use of Pearlstein's teaching of using 1/3 partial pixel resolution into the Benzler-Girod method's second and third search steps in order to afford the Benzler-Girod's method the ability to account for fine motion and correct for drift in the prediction error of its coded signal. The Benzler-Girod method, now incorporating Pearlstein's use of the 1/3 partial pixel resolution has a majority of the features of claim 8, but still fails to disclose using a rate-distortion cost measurement, as in the claim. Girod discloses using a rate-distortion cost measurement for coding motion vectors in order to make judicious use of the coding bit budget (Girod: column 8, lines 32-65). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate the use of Pearlstein's teaching of using 1/3 partial pixel resolutions into the Benzler-Girod method's second and third search steps in order to afford the Benzler-Girod method the ability to account for fine motion and correct for drift in the prediction error of its coded signal. The Benzler method, now incorporating Girod's teaching of using a rate-distortion cost measurement and the use of Pearlstein's teaching of using 1/3 partial pixel resolutions has all of the features of claim 8.

### *Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (703)-305-4813. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris S. Kelley can be reached on (703)-305-4856. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Andy S. Rao
Primary Examiner
Art Unit 2613

asr
November 9, 2004

ANDY RAO
PRIMARY EXAMINER